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SEPARATING FORAMINIFERA FROM SAND.—If you throw dried sponge sand into water, slowly, all the foraminifers will sink, and sand will float on the water. A slide dipped under the floating film of grains will bring up only sand. You can safely skim off and throw away all that does not sink with a little stirring. Then the sunken part should be dipped out, about a dessert-spoonful at a time, into a small saucer, and water enough to just fairly cover them put in, and all floating grains stirred down. Then by a circling movement of the hand the foraminifers will be got to the top, and by gradually tipping the saucer and slowing up the movement they can be worked to one edge of the little pile of sand, and thence carefully dipped up with a rubber bulb pipette. In this way they are got almost pure. Only a little sand must be washed at a time, or not all the foraminifers will be got out, and very little water must be used or sand will get mixed with them. Much water moves the light sand, but a shallow wave seems not to stir it, but yet rolls the shells along—*C. M. Vorce.*

NATURALISTS' DIRECTORY.—The Naturalists' Directory.for 1879, recently published by S. E. Cassino, at Salem, Mass., contains by far the best register of American microscopists yet published. It will be found especially useful to the microscopists who desire to arrange for exchanges in different parts of the country.

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SCIENTIFIC NEWS.

— Recent arrivals at Zoölogical Garden, of Philadelphia: 1 sandhill crane (*Grus americana*); 2 cheetahs (*Felis jubata*) ♂ ♀ Africa; 1 sun bear (*Helarctos euryspilus*) Borneo; 1 Chacma baboon (*Cynocephalus porcarius*); 2 electrical eels (*Gymnotus electricus*) and 2 red-crested cardinals (*Paroaria cucullata*) South America; 3 mule deer (*Cervus macrotis*) and 1 fallow deer (*Dama vulgaris*) Europe, bred in the garden; 7 mandarin ducks (*Aix galericulata*), China; 1 rose-crested cockatoo (*Cacatua moluccensis*); 78 finches, of the following species: *Amadina fasciata*, *A. bicolor*, *Munia undulata*, *M. maja*, *M. acuticauda*, *M. malacca*, *Estrelda amandava* and *E. melpoda;* 2 American elk (*Cervus canadensis*) and 2 Virginia deer (*Cervus virginianus*), bred in the garden; 1 Marabou stork (*Leptoptilus crumeniferus*), West Africa; 2 black-tailed parrakeets (*Polytelis melanurus*), Australia; 1 grand galago (*Galago crassicaudata*), East Africa; 1 Ducorps cockatoo (*Cacatua ducorpsi*), Solomon Islands; 1 lesser sulphur-crested cockatoo (*Cacatua sulphurea*), Moluccas; 1 white goshawk (*Astur novæ-hollandiæ*, Australia; 2 hyacinthine porphyrios (*Porphyrio hyacinthinus*) Europe; 2 white storks (*Ciconia alba*), Germany; 1 armadillo (*Dasypus novem-cinctus*), Texas; 4 collared peccaries (*Dicotyles torquatus*); 5 woodchucks (*Arctomys monax*) and 27 common opossums (*Didelphys virginianus*), bred in the garden; 32 *Amblystoma mavortium* and 10 of the siredon form of that species from Wyoming; 2 sand toads (*Bufo vulgaris*), England; 1 buffalo (*Bison americanus*), ♀ bred in the garden; 1 black ape (*Cynopithecus niger*), Phillipine Islands; 1 moor macaque (*Macacus maurus*), Borneo (?); 2 ashy-black macaques (*Macacus ocreatus*), Celebes (?); 1 African python (*Python sebæ*); 1 Egyptian cobra (*Naia haje*); 1 clapper rail (*Rallus longirostris*), New Jersey; 1 horned lizard (*Phrynosoma douglassi*); 1 rufous rat kangaroo (*Hypsiprymnus rufescens*), and 27 water snakes (*Tropidonotus fasciatus*), born in the garden; 1 rattlesnake (*Crotalus atrox*)?; parasitic jæger gull (*Stercorarius parasiticus*), North Atlantic; 1 great kangaroo (*Macropus giganteus*); 15 banded rattlesnakes (*Crotalus horridus*), and 5 water moccasins (*Ancistrodon piscivorus*), born in the garden; 1 booby gannet (*Sula fiber*), captured off Cape Henlopen; 2 common squirrels (*Sciurus vulgaris*), Europe; 1 orang-utan (*Simia satyrus*), ♀ Borneo; 1 Diana monkey (*Cercopithecus diana*), Africa; 1 saddle-billed stork (*Xenorhynchus senegalensis*), West Africa; 1 tapir (*Tapirus terrestris*) ♀; 4 Yarrell's curassows (*Crax carunculata*); 4 razor-billed curassows (*Mitua tuberosa*); 1 red-breasted swan (*Penelope pileata*), and 18 boas (*Boa constrictor*), South America; 1 eland (*Oreas canna*), Africa, and 2 black wolves (*Canis lupus ater*), received in exchange; 1 hog-nosed snake (*Heterodon simus nasicus*), and 1 rattlesnake (*Crotalus confluentus*) Colorado; 1 soft-shelled turtle (*Aspidonectes*, sp. ?); 1 Javan chevrotain (*Tragulus javanicus*), ♀ bred in the garden; 2 hawks (*Buteo*, sp. ?), Colorado.

— It will appear by the following note from Prof. Birge that we were in error as to the completeness of the series of Bronn's Klassen und Ordnungen.

"Your reviewer has apparently fallen into some errors respecting Bronn's Klassen und Ordnungen. The work is not yet 'drawing to a close.' The Amphibia are the only class of Vertebrates completed; the fishes and reptiles only just begun, while twenty-two parts have only partly finished the osteology of mammals.

"The six parts on birds, treating of osteology and part of the myology, were published nearly ten years ago and none since. Of Crustacea, the first volume is just complete, treating of the Entomostraca only. The worms and insects are not yet begun, while the earlier volumes, especially those on Protozoa and Radiata, are somewhat antiquated.

"The work is indeed invaluable, but no one should buy it in expectation of soon getting the remainder. It has been now twenty years publishing, and at the present rate will not be completed in less than twenty more. Only two volumes, that on Amphibia and the first volume on Arthropoda, have been finished in thirteen years.—*E. A. Birge.*"

— Prof. K. Ellsworth Call and Mr. Arthur F. Gray are now engaged upon a Monograph of North American *Unionidæ*, and desire to make their work complete as regards synonomy. For this purpose they desire shells from all parts of the United States, Mexico and Canada, for purposes of comparison. The shells of the Complanatus group are now desired. Liberal exchanges will be given, or shells (typical) purchased. Parties collecting specimens with soft parts, please address Prof. K. Ellsworth Call, Normal and Scientific School, Dexter, Iowa, or Arthur F. Gray, Danversport, Mass. Information with regard to peculiar forms and interesting localities will be duly acknowledged. Where possible, preserve the animal.

— The *Scientific American* for Dec. 27th, contains an article by D. C. Beard, who accounts for the sea-serpent by supposing it to be the gigantic squid which are known to inhabit the coasts of New Foundland and the high seas. We are not sure but that this is a plausible explanation, and expressed seven or eight years ago, in a communication to the Essex Institute of Salem, that the appearances referred to the "sea serpent" were, perhaps, occasioned by wounded or tired squid of colossal size, such as are known to exist in the oceans in both hemispheres. The barrel-shaped head, large eyes and trailing, undulating body, attributed to the "sea-serpent" can be explained as depicted in the *Scientific American*.—*A. S. Packard, Jr.*

— Second Session of the Chesapeake Zoölogical Laboratory.—A brief report of the work done in this Laboratory has appeared, from which we learn that twelve were present. Dr. Clarke investigated the Hydroids, Prof. Brige the development of two species of crabs, Miss Munn the development of the Ctenophoræ, Mr. Wilson verified the observations of previous writers in regard to the change of Actinotrocha into Phoronis, while Dr. Brooks studied the development of the squid and oyster and ascertained the existence of a rudimentary velum in the Cephalopoda. A brief abstract of his studies on the oyster has already appeared in the columns of the American Journal of Science and arts.—*J. S. K.*

— The report of the curator of the Harvard University Museum of Zoölogy, where geology is also taught, shows that facilities are extended to those desirous of studying lithology. The instruction given by Mr. M. E. Wadsworth during the past year, consisted of lectures upon the macroscopic and microscopic characters of the rocks and their constituent minerals, and also of field and laboratory work. Besides the study of the laboratory collections, each student had assigned to him a separate district, which he was to map, studying the characters and relations of the rocks, and collecting the necessary specimens. Of the rocks thus collected, the student was required to make thin sections and to examine them microscopically, writing a thesis upon the whole work. It was intended that the course should be sufficiently thorough to fit the student for practical field and laboratory research.

— Professor Geikie opened his course of lectures to his class in the University of Edinburgh, November 10th, with a very interesting account of his recent explorations in our Western Territories, a full summary of which appears in *Nature* of November 20th. He described his visit to the Yellowstone park, the Uinta mountains and other portions. His remarks on the evidences of glaciation and the superficial deposits of the West were excellent. He is now preparing an elaborate paper on the glacial phenomena which he observed, which he will offer for publication to some society or journal in this country.

— The committee of the Philadelphia Park Commission, appointed for the purpose, recently held a conference with the committee of the Permanent Exhibition Company. The former, after consideration, resolved to recommend to the commission that the order for the removal of the Permanent Exposition be revoked, on condition that the Permanent Exposition Company raise the sum of $100,000 as a working capital, and agree to conform to the terms of their lease. It is to be hoped that the commission will act on the report of the committee, and give the Permanent Exposition the opportunity to show what it can become.

— Biologia Centrali-Americana. Messrs. Dulau and Co. have commenced a splendid work under the above title, on the animals and plants of Mexico and Central America. It is edited by Messrs. F. D. Godman and Osbert Salvin, who have been collecting their materials for the past twenty-two years. It is to be issued in parts, sixty of zoölogy and twenty of botany, each consisting of about ninety-six pages of letter press, with numerous plates, many colored by hand. The colored plates issued with the first zoölogical part are said to be of remarkable beauty, delicacy and truthfulness to nature.

— Among the names of recently deceased scientists occur the names of Dr. F. Chapuis, the well known Belgian entomologist, who died at Verviers, Sept. 20th; the dipterist C. Rondani, who died at Parma, Sept. 18; and T. Chapman, who died at Burghill, Hereford, Aug. 27. October 17, A. H. Garrod, well known for his papers on the comparative anatomy of birds and mammals, died in London. He was a naturalist of much promise. The death of the French author, Jean Charles Chenu, has lately been reported.

— Prof. J. D. Dana is about to issue a new edition of his very valuable Manual of Geology. This edition will be greatly improved and enlarged and the whole subject brought up abreast of the present progress of the science. This work has occupied the greater portion of his time for several months.

— The Royal Museum of Leiden, as reported by Dr. H. Schlegel, the Director, contains, not reckoning duplicates, 7900 mammals, 50,000 birds, 2900 skeletons, and 4300 skulls. It has one collector in Madagascar and two in West Africa.